WORK PLAN IN RESPONSE TO COUNT 14, ITEMS 2, 3A, AND 3C
REPORT OF ALLEGED VIOLATIONS AND SCHEDULE FOR COMPLIANCE
EPA IDENTIFICATION NO. CAD 064573108

WHITTAKER CORPORATION
BERMITE DIVISION
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CALIFORNIA 91350
DELTA PROJECT NO. 40-90-038

Delta
Environmental
Consultants, Inc.

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DELTA PROJECT NO. 40-90-038

Prepared by:

DELTA ENVIRONMENTAL CONSULTANTS, INC.
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November 23, 1990

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1.0 INTRODUCTION AND SCOPE OF WORK

Delta Environmental Consultants, Inc. (Delta), has been authorized to prepare this work plan in response to Count 14, Items 2, 3a, and 3c of the California Department of Health Services (DHS) Report of Violations and Schedule of Compliance, dated July 31, 1990, for the Bermite facility near Santa Clarita, California (Figure 1). That document states the following:

Count 14: California Health and Safety Code Section 25187:

> Whenever the department determines that there is or has been a release of hazardous waste or constituents into the environment from a hazardous waste facility, the department may issue an order specifying a schedule for compliance or correction. An order issued pursuant to this section shall include a requirement that the person take corrective action with respect to hazardous waste, including the cleanup of the hazardous waste, abatement of the effects thereof, and any other necessary remedial action. "Hazardous Waste Facility" includes the entire site that is under control of an owner or operator in the management of hazardous waste.

We are responding to the following alleged violations:

1. Old Lead Azide Building and Sump:

   According to the "Response to Information Needs," dated November 4, 1987, soil samples were taken in the sump area and drainage area during April 1986, and showed less than 0.05 milligrams per liter (mg/l) of lead. More details on this sampling are required, such as the number, location, depth, and rationale for the sampling points chosen, along with a plot plan of the unit. Additional soil sampling may be required.

Response: Use of this area was discontinued following a lead azide explosion on October 31, 1978. The analytical parameter of interest at this location is the same as that at the lead azide unit Building 207, specifically lead.

The sump at the old lead azide area was cleaned and backfilled in 1978. Soil samples were collected during April 1986 in the sump area and drainage area below the sump. The results from an EP toxicity test indicated that lead concentrations were below 0.05 mg/l (Appendix A). However, the laboratory data sheets as well as the sample collection information are no longer available. Therefore, to verify these results, additional soil samples will be collected and analyzed.

Two soil borings will be advanced, one into the backfilled sump and one in the drainage area. Soil samples will be collected from each boring at depths of 6 and 12 inches and 3 to 4 feet into native material. Proposed sampling locations are shown in Figure 2. The samples will be collected, packaged, and shipped to a state-certified laboratory following the procedures presented in Section 2.0. The samples will be analyzed for total lead by U.S. Environmental Protection Agency (EPA) Method 7420.

2. Transfer Sump for Building 342:

This sump handled wash water from an operation which filled glass ampules of titanium tetrachloride. Titanium tetrachloride is toxic, reactive, and corrosive, and is an extremely hazardous waste in California. High chloride levels have been found in ground water in the area where Building 342 existed. The location of the sump must be determined and soil samples tested for chloride.

Response: There was no transfer sump at Building 342; however, there was a collection sump at Building 110 which was located approximately 600 feet north of the 342 impoundment area. At this location, glass ampules were filled with titanium tetrachloride. Defective ampules were broken in the collection sump which contained, at times, 1 foot of water. The sump had the following dimensions: 3 feet wide, 6 feet long, and 6 feet deep. An overflow pipe consisting of 1-1/2-inch-diameter PVC extended from the collection sump to the surface impoundment at 342.

One soil boring will be advanced through the former location of the sump at Building 110 and another will be advanced adjacent to the former sump. Soil samples will be collected at a depth of 6 feet into the native soil. Although overflow to the pond is not known to have occurred, and there is no evidence suggesting an overflow has occurred, a sample will also be collected and analyzed from the location of the former pond area (342). The depth for sample collection at the 342 area will be determined in the field by a Delta geologist based on subjective analysis of the material encountered in the soil borings. It is expected that native soil will be encountered at 12 feet below the ground surface at the former 342 pond area. Proposed sampling locations are presented in Figure 3. The samples will be collected, packaged, and shipped to a state-certified laboratory following the procedures presented in Section 2.0. These samples and a sample from the background area identified in the report "Verification Sampling Results at Selected RCRA Units" will be analyzed for chloride. A deionized water leach will be performed on each sample followed by filtration and determination of chloride concentration by titration.

The hydrogeologic features in the area preclude the migration of any constituents in the 342 impoundment from entering the ground water in the area of monitoring well MW-2. Data contained in the *Hydrogeologic Assessment Report*, dated May 1990, and data obtained during drilling of MW-2 and other monitoring wells at the Bermite facility, indicate that the aquifer is under confined conditions. This means that the recharge to the aquifer system must be occurring in an area that is far-removed from the 342 impoundment. In short if the constituents from the 342 area cannot enter the aquifer in the area of MW-2, then the pH and electrical conductivity values noted in MW-2 are not affected by former operations in the 342 area.

3. Units Mentioned in a Bermite Company Memo, dated August 26, 1982:

   a. The ravine above the phosphorous stabilizing area was apparently used for disposal of discarded drums. This area must be identified and sampled for hazardous waste and hazardous waste constituents. Past disposal practices may have affected ground water at the 342 area.

Response: According to a Whittaker Corporation memorandum dated August 26, 1982, discarded drums were observed in a ravine above the phosphorous stabilizing area on August 17, 1982. The area in which drums were observed was approximately 25 feet wide by 50 feet long and is shown in Figure 3. A visual inspection will be made of the area where drums were observed. A soil sample will be collected at a depth of 1 foot below the ground surface in any area showing signs of contamination. Next, a grid will be established across the area and will consist of 5-foot by 5-foot cells (Figure 3). Each cell will be checked for volatile organic compounds (VOCs) by pushing a rod into the ground to a depth of 1 to 3 feet below the ground surface. The rod will be removed and the hole covered with plastic for a minimum of 15 minutes. After a minimum of 15 minutes have elapsed, the tip of an OVA will be placed into the hole and a measurement will be recorded. A soil sample will be collected from 3 feet below the ground surface at any location where an OVA measurement exceeds background concentrations. Finally, a random numbers generator will be used to select cells where three soil borings will be advanced. Two soil samples will be collected from each of the three soil borings at depths of 5 and 10 feet below the ground surface.

The soil samples will be collected, packaged, and shipped to a state-certified laboratory following the procedures presented in Section 2.0, and analyzed for purgeable organic compounds by EPA Method 8260, semivolatile priority pollutants by EPA Method 8270, and total concentrations of California Assessment Manual Metals specified in California Administrative Code (CAC), Title 22, Chapter 30, Article 11.

c. Numerous spills were noted on the driveway and curbing at the paint storage area of Building 228. This area must be identified and a sampling plan developed and implemented.

Response: An appropriate grid will be established across the former paint storage area of Building 228 and will consist of 10-foot by 10-foot cells (Figure 2). Each cell will be checked for VOCs by pushing a rod into the ground to a depth of 1 to 3 feet below the ground surface. The rod will be removed and the hole covered with plastic for a minimum of 15 minutes. After a minimum of 15 minutes have elapsed, the tip of an OVA will be

placed into the hole, and a measurement will be recorded. A soil sample will be collected from 3 feet below the ground surface at any location where an OVA measurement exceeds background concentrations. Next, a random numbers generator will be used to select cells where three soil borings will be advanced. Two soil samples will be collected from each of the three soil borings at depths of 5 and 10 feet below the ground surface.

The soil samples will be collected, packaged, and shipped to a state-certified laboratory following the procedures presented in Section 2.0, and analyzed for purgeable organic compounds by EPA Method 8260, semivolatile priority pollutants by EPA Method 8270, and total concentrations of the California Assessment Manual Metals specified in CAC, Title 22, Chapter 30, Article 11.

2.0 SAMPLE COLLECTION AND HANDLING PROCEDURES

The scope of work will include the sampling of soil at the following locations: collection sump at Building 110, the former pond area at 342, ravine above the phosphorous stabilizing area, the area near Building 228, and the background location previously identified in the report "Verification on Sampling Results at Selected RCRA Units". The soil samples will be analyzed at a state-certified laboratory for concentrations of parameters identified above. After the laboratory analytical data become available, a report presenting the results of our fieldwork and the laboratory findings will be prepared.

Soil boring and soil sampling work will be performed under the direct supervision of a Delta geologist. The soil borings will be advanced using a truck-mounted drill rig utilizing hollow-stem augers. After advancing each boring to its appropriate sampling depth, the plug in the lead auger will be removed for sampling. A California-modified split-spoon sampler will be lowered inside the hollow-stem of the augers and a sample collected by pushing the sampler into the soil below the lead auger. Following collection of the sample, the augers will be removed and the boring backfilled with the soil cuttings.

2.1 Soil Sample Collection

Soil sampling will be performed in accordance with ASTM 1586-84. Using this procedure, a 2-inch outside-diameter split-barrel sampler or a 2-inch inside-diameter California-type sampler is driven into the soil by a 140-pound weight falling 30 inches. After an initial set of 6 inches, the number of blows required to drive the sampler an additional 12 inches is known as penetration resistance, or the "N" value. The "N" value is used as an empirical measure of the relative density of cohesionless soils and consistency of cohesive soils.

For this project, a California modified split-barrel sampler will be used to extract the soil samples from the soil boring. Three 6-inch brass tubes will be inserted into the sampler to retain each soil sample. Upon recovery, one of the brass tubes will be used for soil classification and description. The middle tube will be sealed by placing Teflon tape, plastic caps, and duct tape over each end. This tube will be placed in an ice chest for later shipment to the laboratory. All tubes will be kept in an ice chest at 4°C from the time of collection until they arrive at the laboratory. A strict chain-of-custody will be maintained, as described in Section 3.0.

2.2 Soil Classification

As the samples are obtained in the field, they will be classified by the crew chief/geologist in accordance with ASTM D2488-84. Representative portions of the samples will then be returned to the laboratory for further examination and for verification of the field classification. Logs of the borings indicating the depth and identification of various strata, the "N" value, water level information, and pertinent information regarding the method of maintaining and advancing the borehole will be made. Charts illustrating soil classification procedures and the descriptive terminology and symbols used on the boring logs will also be made.

2.3 Decontamination

All drilling and sampling equipment will be cleaned before each soil boring is drilled using a high-pressure steam cleaner. The California split-spoon sampler will be precleaned with water, cleaned with phosphate-free soap, and double-rinsed with water following each sample collection.

3.0 QUALITY ASSURANCE PLAN

Proper collection and handling are essential to ensure the quality of a sample. Each sample will be collected in a suitable container, preserved correctly for the intended analyses, and stored prior to analysis for no longer than the maximum allowable holding time. Details on the procedure for collection and handling of soil samples to be used on this project can be found in Section 5.0.

3.1 Sample Identification and Chain-of-Custody Procedures

Sample identification and chain-of-custody procedures ensure sample integrity and document sample possession from the time of collection to its ultimate disposal. Each sample container submitted for analysis will have a label affixed to identify the job number, sampler, date and time of sample collection, and a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel, and any other pertinent field observations will be recorded on the borehole log or in the field records. All samples will be analyzed by a qualified laboratory.

A chain-of-custody form will be used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them will relinquish the samples by signing the chain-of-custody form and noting the time of shipment. The sample-control officer will verify sample integrity and confirm that it was collected in the proper container, preserved correctly, and that there is an adequate volume for analysis.

3.2 Analytical Quality Assurance

In addition to routine calibration of the analytical instruments with standards and blanks, the analyst is required to run duplicates and spikes on 10 percent of the analyses to insure an added measure of precision and accuracy. Accuracy is also verified through the following:

1. EPA and state certification programs.

2. Participation in an interlaboratory or "round-robin" quality assurance program.

3. Verification of results with an alternative method. For example, calcium may be determined by atomic absorption, ion chromatography, or titrimetric methods. Volatile organics may be determined through either purge and trap or liquid-liquid extraction methods.

3.3 Miscellaneous Checks of Accuracy

Where trace analysis is involved, purity of the solvents, reagents, and gases employed is of great concern. The laboratory maintains a service contract on all major instrumentation; gas chromatograph, atomic absorption, ion chromatography, and total organic carbon analyzers are all serviced and maintained regularly.

4.0 SCHEDULE

As soon as approval is obtained, Delta will proceed with the work outlined in this plan. Drilling and collection of soil samples will be initiated within 3 weeks of approval. A report presenting the results of our findings will be prepared and submitted 6 weeks after the laboratory results are received.

5.0 REMARKS/SIGNATURES

The recommendations contained in this report represent our professional opinions, and are based in part, on information supplied by the client and their previous consultants. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

DELTA ENVIRONMENTAL CONSULTANTS, INC.

This report was prepared by: Lisa Ranger for James R. Brownell
Hydrogeologist

Date 11/23/90

The work performed in this report was done under the supervision of a California Registered Geologist: Brian Krogseng

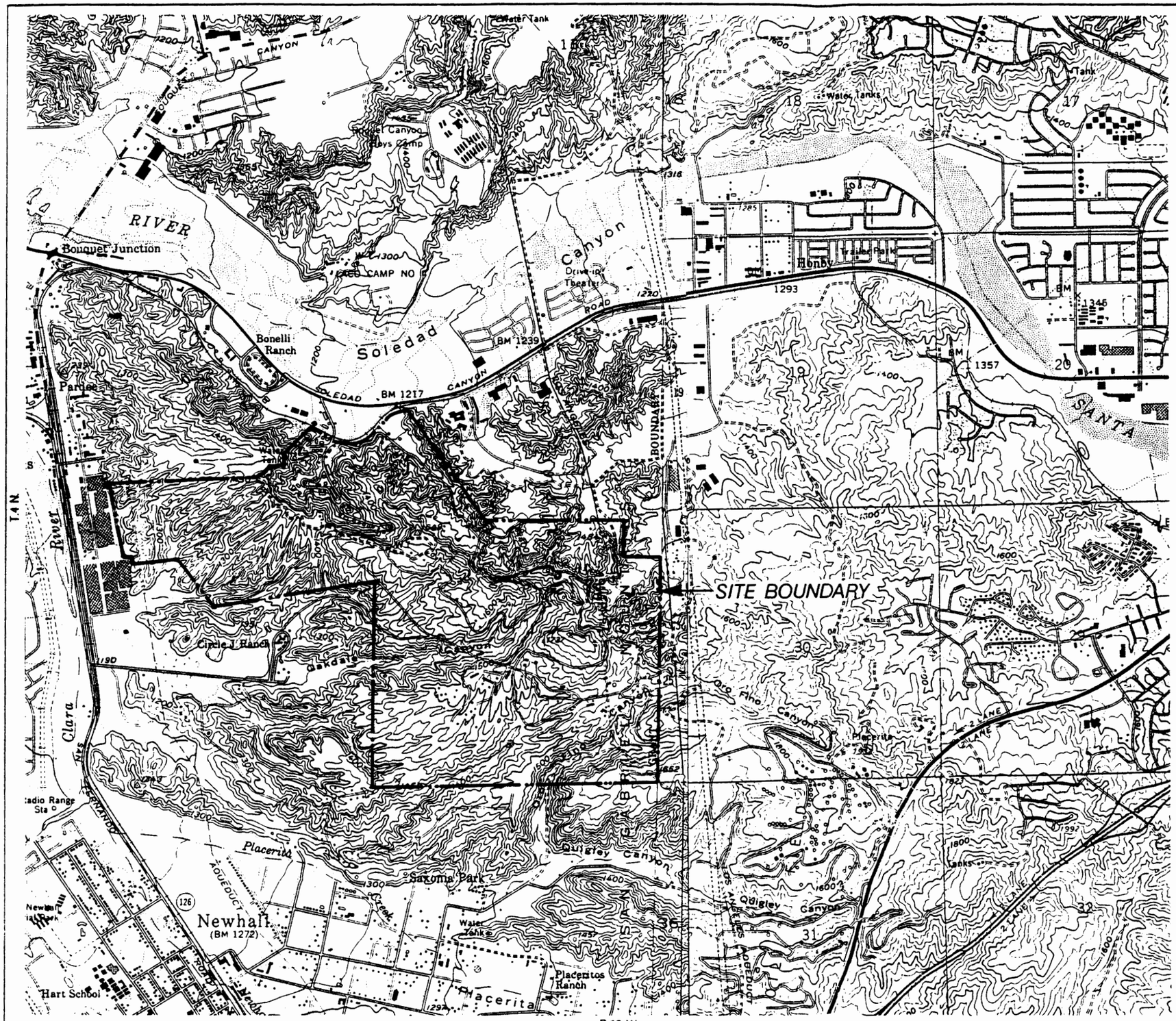
Brian L. Krogseng, R.G.
California Registered
Geologist #2303

Date 11-23-90

REGISTERED GEOLOGIST
BRIAN KROGSENG
No. 2303
STATE OF CALIFORNIA

/law

FIGURES



North

GENERAL NOTES:

BASE MAP FROM U.S.G.S.
MINT CANYON & NEWHALL, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1988

QUADRANGLE LOCATION

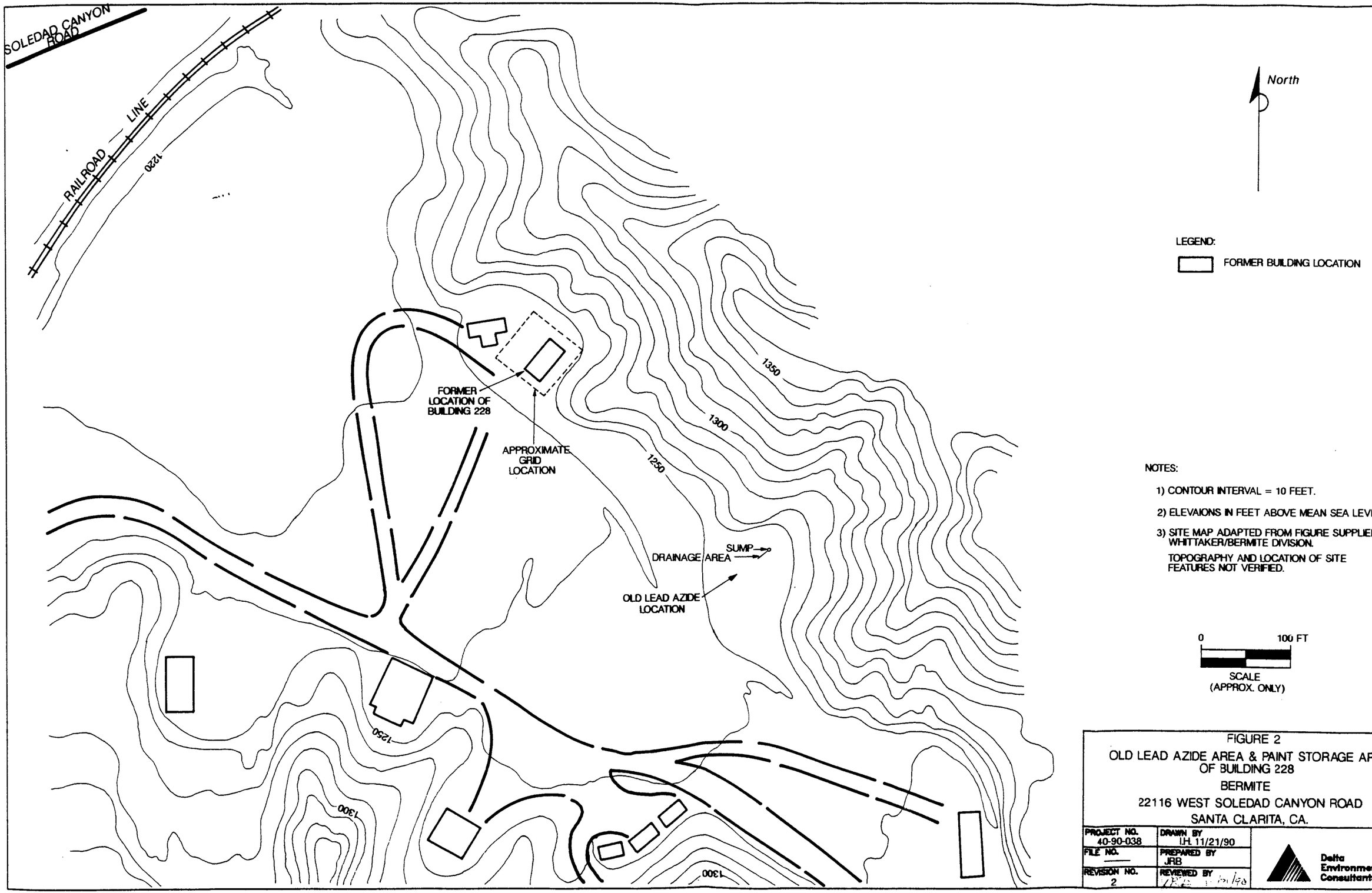
0 2000 FT

SCALE 1 : 24,000

FIGURE 1
SITE LOCATION MAP
BERMITE
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CA.

PROJECT NO. 40-90-038	DRAWN BY I.H. 9/17/90
FILE NO. —	PREPARED BY
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



NOTES:

1) CONTOUR INTERVAL = 10 FEET.

2) ELEVAIONS IN FEET ABOVE MEAN SEA LEVEL

3) SITE MAP ADAPTED FROM FIGURE SUPPLIED BY WHITTAKER/BERMITE DIVISION.
TOPOGRAPHY AND LOCATION OF SITE FEATURES NOT VERIFIED.

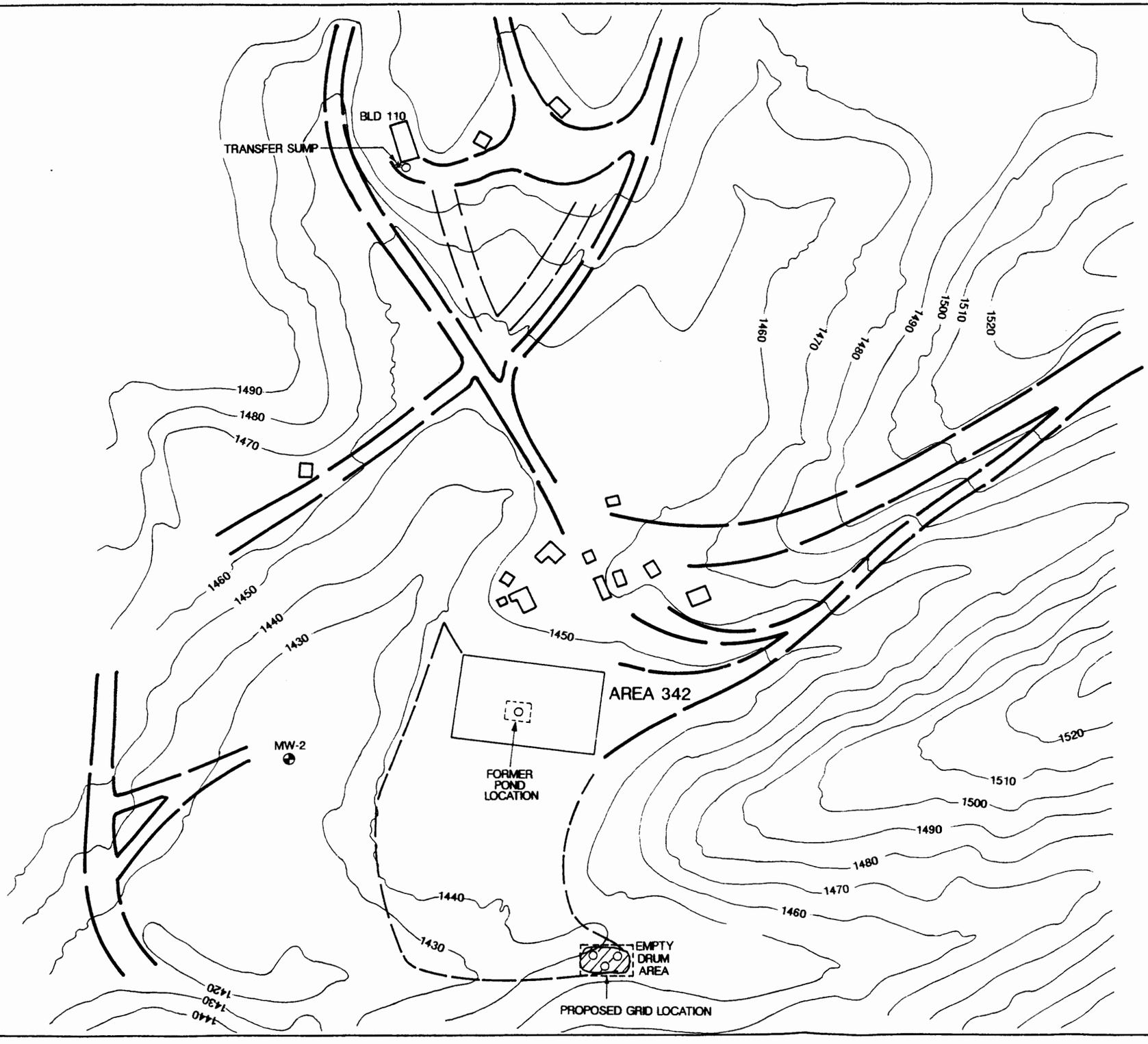
0 100 FT

SCALE
(APPROX. ONLY)

FIGURE 2
OLD LEAD AZIDE AREA & PAINT STORAGE AREA
OF BUILDING 228
BERMITE
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CA.

PROJECT NO. 40-90-038	DRAWN BY I.H. 11/21/90
FILE NO. —	PREPARED BY JRB
REVISION NO. 2	REVIEWED BY

Delta Environmental Consultants, Inc.



North

LEGEND:

- MW-2 MONITORING WELL LOCATION
- PROPOSED SOIL BORING LOCATION
- FORMER BUILDING LOCATION

NOTES:

1) CONTOUR INTERVAL = 10 FEET.

2) ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL

3) SITE MAP ADAPTED FROM FIGURE SUPPLIED BY WHITTAKER/BERMITE DIVISION
TOPOGRAPHY AND LOCATION OF SITE FEATURES NOT VERIFIED.

0 100 FT
SCALE
(APPROX. ONLY)

FIGURE 3
SITE MAP - AREA 342
BERMITE
22116 WEST SOLEDAD CANYON ROAD
SANTA CLARITA, CA.

PROJECT NO. 40-90-038	DRAWN BY LH 11/21/90
FILE NO. ___	PREPARED BY JRB
REVISION NO. 2	REVIEWED BY JRB 11/21/90

Delta Environmental Consultants, Inc.

APPENDICES

APPENDIX A

Old Lead Azide Area Data

RESPONSE: OLD AZIDE AREA HOLDING TANK AND BASIN

On October 31, 1978, Mr. Bruce Neubauer was fatally injured by a lead azide explosion at the old lead azide area. Though this facility was in operation for at least 20 years prior to the explosion, following the injury, the area was closed and a new azide area was constructed.

The old facility consisted of a wood frame building with a wood roof, corrugated steel sides and was approximately 12-feet by 16-feet. The building probably had a plywood floor.

The start date of operation of this unit is unknown, but the unit was operated until October 31, 1978.

The wastes that were generated at this unit were the same as the lead azide waste described in the Revised RCRA Closure Plan for the lead azide unit building 207. The wastewaters were discharged to concrete sumps after the neutralization process took place.

For safety purposes, during 1978, the sumps were carefully cleaned out and backfilled. Soil samples taken in the sump area and drainage area below this area were taken during April 1986 and showed lead EP toxicity tests of less than 0.05 mg/l.

APPENDIX B

Site Health and Safety Plan

POST ON-SITE

FIELD INVESTIGATION TEAM
CLASS III SITE HEALTH AND SAFETY PLAN

Prior to initiating field activities the Site Safety Officer (SSO) must review the Site Health and Safety Plan (SHSP) with all members of the field crew. Each member must then sign and date a copy of the SHSP indicating they have reviewed and understand all aspects of the SHSP. This signed copy is returned to the project file upon completion of field activities.

SHSP's may be revised, or rewritten for different phases of a project, if site activities are distinctly different, if areas of differing hazard are involved, or as information about contaminants and hazards changes. Changing conditions may justify either tightening or loosening SHSP restrictions and action levels, depending upon the additional information generated.

DELTA PROJECT NUMBER 40-90-038

SIGNATURES OF REVIEWERS/FIELD CREW: Signature indicates that the signer has reviewed and understands all segments of the SHSP.

Signature	Date

LOCAL EMERGENCY TELEPHONE NUMBERS (provide area codes)

Ambulance	911
Hospital Emergency Room	911
Poison Control Center	(213) 484-5151 or 911
Fire Department	911
Airport Burbank Airport	(818) 840-8847
Explosives Unit	911

A. GENERAL INFORMATION

Client: Whittaker Corporation **Delta Project Number:** 40-90-038

Site Name: Bermite Division **Client Claim/P.O. Number:**

Site Address: 22116 West Soledad Canyon Rd. Saugus California 91350 **Site Owner:** Whittaker Corporation

Project Manager: Michael O'Brian

Plan Prepared by: Lisa Rainger **Date:** 9/21/90

Approved by: **Date:**

Revised by: Jim Brownell for Soil Sampling Work Plan dated Sept. 1990, **Date:** 9/27/90

Revision Approved by: **Date:**

Objectives:

Phase I -

Phase II - Drilling of Soil Borings collection of soil samples for analyses, and presentation of results.

Phase III -

Proposed Date of Investigation: October 1990 - start up monitoring program

Hazard Summary/Level of Protection:

A. [ ] B. [ ] C. [ ] D. [X] **(with modifications - see Section D.1)**

Summary of Available Information:

See Attached Workplan

Sources of Background Information:

See Attached Workplan

B. EMERGENCY INFORMATION

LOCAL TELEPHONE NUMBERS (provide area codes):

Ambulance	911
Hospital Emergency Room	911
Poison Control Center	911 or (213) 484-5151
Fire Department	911
Airport Burbank Airport	(818) 840-8847
Explosives Unit	911

Note: If you list 911, check to be sure it is activated in the site area, and determine whether or not it is enhanced. HAS been checked

SITE RESOURCES:

Water supply available on site:	Yes [X]	No []
Telephone available on site:	Yes [X]	No []
Bathrooms available on site:	Yes [X]	No []
Other resources available on site:	Yes []	No []

If yes, identify: BACKHOE + operator

If you answered "no" to any of the above questions, identify the closest available facility, and provide directions.

EMERGENCY CONTACTS	PHONE NUMBER (provide area codes) Work	Home
1. Project Manager: Michael O'Brian	(916) 638-2085	(916) 689-1438
2. District Manager: Barbara Mickelson	(916) 638-2085	(916) 676-3831
3. Health and Safety Officer: Lisa Ranger	(916) 638-2085	(916) 689-8257
4. Site Contact: Glen Abdun Nur	(805) 259-2241	
5. Regulatory Consultant:		
6. National Health and Safety Officer: Steve Reynolds	800/888-1331	612/699-4197
7.		
8.		
9.		
10.		

C. EMERGENCY ROUTES See Attached Hospital Route MAP

(Give name, address, telephone number, directions, distance and time estimate, and map.)

Hospital: Henry Mayo Newhall Memorial Hospital, 23845 McBean Pkwy
Exit the site onto Soledad Canyon Road heading west, continue on Soledad Canyon Rd through to Valencia Blvd, (Calif.) Valencia Blvd to McBean Parkway. Turn South (left) onto McBean Blvd. Hospital on right

Other:

D. SITE/WASTE CHARACTERISTICS

Waste/Contaminant Type(s): Liquid [ ] Soil [X] Solid [ ] Sludge [ ] Gas [ ]

Characteristic(s): [ ] Corrosive [ ] Ignitable [ ] Radioactive
[X] Volatile [X] Toxic [ ] Reactive
[ ] Unknown [ ] Other (Name) _____

Major Spills/Releases

Release Type	Date	Chemical	Quantity	Contaminated Media*
Unknown				

(*air, surface water, soil, or ground water)

Free Product: Yes [ ] No [X] Dissolved: Yes [ ] No [ ]

Have removal actions occurred: Yes [X] No [ ]
If yes, describe:
Excavation activities - Three trenches in the immediate area of P1 - P3. Excavation area was approximately 8 ft. by 10 ft. long by ft wide by ft deep

General Facility Description:
former ordinance manufacturing plant manufactured military ordinance including rocket propellant, fuse mixes - BP1 powder

Site Characterization:

Description: Active [ ] Closed/Abandoned [X]
Site Activities:
Closure Activities

(operations on-site, products, raw materials used, etc.)

How many years has the site been operating: 82 1905-1987

Was the site used by previous owners: Yes [X] No [ ]
Describe previous site activity:
Bermite Powder Company

Surface cover on-site includes:

[X] Soil/bare ground	[ ] Clay caps	[ ] Plastic cover
[ ] Grass	[X] Paving/asphalt	[ ] Water bodies
[ ] Woods	[ ] Swamp	[X] Brush/scrub
[X] Buildings	[X] Unpaved roads	[ ] other _____

Site surface area estimated at: 950 Acres ~~sq. ft.~~

Percentage of surface area:

paved	10 %
vegetated	40 %
bare soil	50 %
under water	0 %

Potential for dust generation on-site: High [ ] Medium [X] Low [ ]

Any site access restrictions: Yes [X] No [ ]
Fenced/locked [X] Posting (signs) [X] Security guards [X]

Is there evidence of public access to the site: Yes [ ] No [X]
If yes, describe:

Chemicals/Waste Stored On-site:

	How many?	Size?	Chemical?
[ ] drums			
[ ] tanks			
[ ] vats	N/A		
[ ] surface impoundments			
[ ] pits/landfills			
[ ] other _____			

Utilities location/ownership (Electrical, Gas, Telephone, Cable TV):
Unknown - use caution tools - hand augers prior to drilling activities

History (worker or non-worker injury; complaints from public; previous agency action):
Unknown

Have citizen complaints been filed regarding the site: Yes [ ] No [ ]
If yes, describe:
Unknown

Are regulatory agencies involved with the site: Yes [X] No [ ]
If yes, are they federal [ ] state [X] local [X]

Regulatory Contacts:

Name	Agency	Phone
ALAN Sorsher	DHS - Berbank	(805) 253-7258

E. HAZARD EVALUATION

List all chemicals below that have been identified or are suspected on site and their maximum concentrations in soil/water. Information on hazardous properties are listed in the appendix. For chemicals not shown in the appendix, enter the hazardous property information in the spaces provided.

Chemical Name	PEL/TLV	Maximum Concentration in Soil	Maximum Concentration in Water	Health Hazards/ Comments
		OVA Readings (ppmv)		
* PCE	25 ppm	11,900	Unknown	Skin + eye irritation liver + kidney damage Narcotic
TCE	50 ppm	**		SAME AS ABOVE
Lead	TLV 50 ug/m³	<0.05 ppm	Unknown	

* PCE is a suspected human carcinogen

** Based on field OVA readings from vapor probes

PCE: Perchloroethylene (Tetra)

TCE: Trichloroethylene

(Refer to appendix for detailed Hazardous Property information)
P = results pending

Potential Hazards (check boxes that apply to the site):

[ ] corroded containers	[ ] visible leachate	[ ] underground tanks
[ ] visible soil contamination	[ ] odors	[ ] surface tanks
[ ] observed free product	[X] dust	[ ] observed tanks
[ ] open lagoons	[ ] open pits	

[ ] air stack emissions	[ ] on-site surface water contamination
[ ] visible on-site releases	[ ] off-site surface water contamination
[ ] visible off-site releases	[ ] interior building contamination
[ ] visible on-site erosion	[ ] no obvious hazards

* poisonous snakes + insects

F. SITE SAFETY WORK PLAN

PERSONNEL:

Team Members (list)	Responsibility
Michael DiBrian	Project Manager
Lisa Rainger	Site Safety Officer
Barbara Mickelson	Public Information
Lisa Rainger	Field Team Leader

PERIMETER ESTABLISHMENT:

Map/Sketch attached: Yes [X] No [ ] Site secured: Yes [X] No [ ]

Perimeter identified: Yes [X] No [ ] Zone(s) of Contamination identified: Yes [X] No [ ]

INVESTIGATION-DERIVED MATERIAL DISPOSAL:

Disposal of soil cuttings and water are the responsibility of the subcontractor.

FL PERSONAL SAFETY

SITE ENTRY PROCEDURES: Check in with safety officer for daily safety mtg
Review Safety Plan
Prescreen Sites with OVA

PERSONNEL PROTECTION:

Level of Protection: A [ ] B [ ] C [ ] D [X]

Modifications:

1. All personnel must wear hardhat, safety shoes, safety glasses and/or face shield.

2. Neoprene gloves and tyvek/saranax suit should be worn if contact with contaminated water or soil is likely.

3. Hearing protection must be worn if noise levels prevent normal conversation at a distance of three feet. No smoking, eating, or drinking is allowed on site.

4. No personnel are to enter or approach any excavation area where there is a danger of wall collapse or confined space entry.

5. Respiratory protection is dependent on conditions listed in next section.

Surveillance Equipment and Materials:

Instrumentation	Action Level	Action
photoionization detector (hNu)	_____units*	
Other (specify):	Organic Vapor Analyzer OVA Action level — 5ppm — Level C - APR with organic vapor cartridges	
Drager Tubes for specific chlorinated compounds (confirmation)		
oxygen meter	< 19.5% oxygen	do not enter area or confined space
explosimeter	> 10% LEL	eliminate all ignition sources and
	> 20% LEL	reduce levels immediately or leave site

*Method of calculation: Chemical known - ½ x TLV = Level C - Air purifying respirator
5 x TLV = Level B - Supplied air respirator
Unknowns - 5 x background or 5 units = Level C - APR with combination organic vapor/dust cartridges
10 x background or 10 units = Level B - Supplied air respirator

First Aid Equipment: Standard first aid kit, portable eye wash

First Aid Procedures:

Ingestion:	DO NOT induce vomiting, summon medical help
Inhalation:	Move victim to fresh air, seek medical attention if needed
Dermal Exposure:	Remove contaminated clothing, flush with water

DECONTAMINATION PROCEDURE:

Level: A. ☐ B. ☐ C. ☐ D. ☑ (refer to Health and Safety Manual for detailed instructions)
Personnel: Flush exposed skin with soap and water.
Special requirements:

None

WORK LIMITATIONS (time of day, weather, heat/cold stress):

In high ambient temperatures, follow heat-stress precautions: Provide plenty of cool water and electrolytes (e.g. Gatorade), remove protective clothing during breaks; check resting pulse and increase

number of breaks if pulse does not return to normal during work breaks.

In cold ambient temperatures (< 0°F.), follow hypothermia precautions.

Work may only progress during daylight hours or under conditions of adequate lighting.

ELECTRICAL HAZARDS:

Utilities located by Delta - USA on prior to Drilling (date) before drilling.

Maintain at least 10 feet clearance from overhead power lines. If unavoidably close to overhead or buried power lines, turn power off and lockout circuit breaker. Avoid standing in water when operating electrical equipment.

CONFINED SPACES:

If entry into confined space is necessary, an Entry Permit must be completed and authorized, and confined space entry procedures followed.

G. SITE SKETCH

See Attached MAP

HAZARDOUS PROPERTY INFORMATION

MATERIAL	WATER SOLUBILITY[A]	SPECIFIC GRAVITY	VAPOR DENSITY	FLASH POINT DEG. F	VAPOR PRESSURE	LEL/ UEL	LD_{50} MG/KG	TLV-TWA[C]	IDHL LEVEL	ODOR THRESHOLD OR WARNING CONCENTRATION	HAZARD[J] PROPERTY	DERMAL TOXICITY	ACUTE[L] EXPOSURE
etn	22%	0.8410	1.9	-15	214 mm	3.8/	46	0.1 ppm	5 ppm	(0.21 16(0.5))	BCED	BJ	ABDFGHIKL
onitrile	7.1%	0.8060	1.8	30	83 mm	3/17	82	2 ppm	4000 ppm	19 - 100	BCEGD	DIQ	FGIKLMNOR
ne	820 ppm	0.8765	2.8	12	75 mm	0.339/ 7.1	3800	1 ppm	2000 ppm	4.68	BCGD	CIQ	BCDFHIKLMNOOR
oethane	0.1 g	1.732	3.3	None	1.88 atm	13.5/		5 ppm	2000 ppm	No Occurrence	CD		BCDEIJKLMNOOR
ichloromethane	Insoluble	1.98	---	None	N/A	No-flam	916	None Estab	None Specif		CGD		BIMN
form	0.01 g	2.887	---	None	5 mm	No-flam	1147	0.5 ppm	N/A	530	CED		BCDKMN
n Tetrachloride	0.08%	1.5967	5.3	None	91 mm	No-flam	2800	2 ppm	300 ppm	21.4-200	CD	JGN	ABCFGHKNQ
obenzene	0.01 g	1.1058	3.9	84	8.8 mm	1.3/ 9.6	2910	75 ppm	2400 ppm	0.21 - 60	BCD	CIF	BCFIKLMNOPQR
oethane	0.06 g	0.8978	2.2	-58	1.36 atm	3.8/ 15.4		1000 ppm	20,000 ppm		BCD		BFHIKMNP
oroethylvinyl	Insoluble	1.0475	3.7	80	30 mm	---	250	None Estab	None Specif		BCD		HIM
oform	0.8 g	1.4832	4.12	None	160 mm	No-flam	800	2 ppm	1000 ppm	50-307 (3200) Fatigue	CD		BCEGIKLMN
romethane	0.74%	0.9159	1.8	32	50 atm	7.6/19		50 ppm	10,000 ppm	10-100 No Odor	BCD	DHF	ABCDEFGIJKLOQR
omochloromethane	Insoluble	2.451	---	---	---	---	848	None Estab	None Specif		BCD		BFHIMNPQ
ichloroethane	0.1 g	1.1757	8.4	22	182 mm	6/16	725	100 ppm	4000 ppm	5 ppm	BCD		ABHIMNO
ichloroethane	0.8%	1.2554	3.4	55	87 mm	6.2/16	670	10 ppm	1000 ppm	6 ppm	BCDQ		BIMN
ichloroethane	3350 mg/l Solubility	---	3.4	3	591 mm	7.3/16	200	5 ppm	None Specif		BCD		ABFILOQ
2-Dichloro-	Solubility	1.2565	---	36	400 mm	9.7/ 12.8		200 ppm	None Specif	.0043 mg/l	BCD		ABGHIKMNQ
ichloropropane	0.26%	1.1583	3.9	60	40 mm	3.4/ 14.5	1900	75 ppm	2000 ppm	50	BCD		ABGHIKLMNP
3-Dichloro-	Insoluble	1.2	3.8	83	28 mm	5/14.5	250	1 ppm	None Specif		BCD		ABGHIKLMNP
3-Dichloro-	Insoluble	1.2	3.8	83	28 mm	5/14		1 ppm	None Specif		BCD		ABGHIKLMNP
enzene	0.015 g	0.867	3.7	59	7.1 mm	1/6.7	3500	100 ppm	2000 ppm	0.25-200 (200)	BCD	CIF	ABFHIKLMNPQR
ene Chloride	Slty Soluble	1.335	2.9	None	350 mm	12/NA	167	50 ppm	5000 ppm	25-320 (5000)	CED	CIF	BCIKLMNR
2-Tetrachloro-	0.19%	1.5953	5.8	None	5 mm	No-flam		1 ppm	150 ppm	3 - 5	CD		ABCFHIKLMNOQ
hloroethylene	0.15 g/ml	1.6227	5.8	None	15.8 mm	No-flam	8850	25 ppm	500 ppm	4.68-50 (160-690)	CD		ACFHIKLMNP
Trichloroethane	0.07 g	1.3390	4.6	None	100 mm	8/10.5	10,300	350 ppm	1000 ppm	20 - 400	BCED		ABEFHIKLMOP
Trichloroethane	0.45	1.4397	4.6	None	19 mm	6/15.5	1140	10 ppm	500 ppm	0	C		BEFGHIKLMNOPQ
oroethylene	0.1%	1.4642	4.5	90	58 mm	12.5/90	4920	50 ppm	1000 ppm	21.4-400	BC		BFKLNOPQ
orofluoroethane	0.11 g	1.494	---	None	0.91 atm	No-flam		1000 ppm	10,000 ppm	135-209	CD		BFHKLQ
e	0.05 g	0.866	3.2	40	22 mm	1.3/7.1	5000	100 ppm	2000 ppm	0 (300-400) Fatigue	BC	BHE	BEFHIKLMNOPQ
Chloride	Negligible	0.91	2.24	-108	3.31 atm	3.6/33	500	1 ppm	None Specif	260	BEDQ	DJQ	ABFHIKLNR
NIC (As dust/mist)													
c	B	5.727	N/A	None	N/A	F		10 ug/m^3	None Specif		CEQ	CJQ	ACDGIKLMOQR
llium	B	1.85	N/A	None	N/A	F		2 ug/m^3	None Specif		C		IJNNR

CAS]	WATER SOLUBILITY[A]	SPECIFIC GRAVITY	VAPOR DENSITY	FLASH POINT DEG. F	VAPOR PRESSURE	LEL/ UEL	LD_{50} MG/KG	TLV-TWA[G]	IDHL LEVEL	ODOR THRESHOLD OR WARNING CONCENTRATION	HAZARD[J] PROPERTY	DERMAL TOXICITY	ACUTE[L] EXPOSURE
...n	B	8.642	N/A	None	N/A	F	225	0.2 mg/m^3	40 mg^3		C		ABGIKLMHQR
...ium	B	7.2	N/A	None	N/A	F		0.5 mg/m^3	500 mg^3				FHNQ
r	B	8.92	N/A	None	N/A	F		1 mg/m^3	None Specif		C		FQIJLMOQR
	B	11.3437	N/A	None	N/A	F		50 ug/m^3	None Specif		C		ACDEGHOR
ry	B	13.5939	7.0	None	0.0012 mm	F		50 ug/m^3	28 mg/m^3		C		ACLMNQ
e	B	8.9	N/A	None	N/A	F		1 mg/m^3	None Specif		C		DQJLMNQ
r	B	10.5	N/A	None	N/A	F		0.01 mg/m^3	None Specif		C		IN
...ium	B	11.85	N/A	None	N/A	F		0.01 mg/m^3	20 mg/m^3		C	BQ	ADGLMOQ
Oxide (Resp)	B	7.14	N/A	None	N/A	F		5 mg/m^3	None Specif		C		DF
LANEOUS													
...os	Insoluble	2.5	N/A	None	N/A	Non-flam		0.2 fibers/cc	None Specif		CQ		MN
...ic	58-72%		N/A	None	N/A	Non-flam		5 mg/m^3	50 mg/m^3		CD		FKLNPQ
...oric)	Slightly	---	N/A	None	N/A	Non-flam		1.0 ug/m^3	None Specif		CQ		CHLPQ
	8.4%	1.0576	3.2	175	0.36 mm	1.8/8.6	414	5 ppm	100 ppm	0.047 - 5 (48)	C		ABCDGIKMNOQR
	0.00003%	0.8642	3.7	84	9 mm	1.1/7	5000	100 ppm	10,000 ppm	0.5 - 200 (200)	BCD		ABFHIKLMNPQ
e	Soluble	0.8	2	-4	400 mm	2.6/	9750	750 ppm	10,000 ppm	100	BCD	DI	M
...c Acid	Soluble	1.67-2.82	N/A	None	N/A	Non-flam		1 mg/m^3	None Specif		ACEQ		GIN

	WATER SOLUBILITY[A]	SPECIFIC GRAVITY	VAPOR DENSITY	FLASH POINT DEG. F	VAPOR PRESSURE	LEL/ UEL	LD_{50} MG/KG	TLV-TWA[C]	IDHL LEVEL	ODOR THRESHOLD OR WARNING CONCENTRATION	HAZARD[J] PROPERTY	DERMAL TOXICITY	ACUTE[L] EXPOSURE
l fuel	Insoluble	.81-0.90	N/A	130	N/A	0.6-1.3 6-7.5		None Estab.	NE	0.008 ppm	BCD	CI	BCDHEIKLMNP
ine	Insoluble	.72-0.76	3-4	-45	Var.	1.4% 7.6%		300 ppm	NE	<1 ppm	BCD	CI	BCEFHIKLMNP
ene	Insoluble	0.83-1.0	N/A	100-165	5	0.7% 5.0%		None Estab.	NE	0.008 ppm	BCD	CI	BCDFHIKLMNP

HAZARDOUS PROPERTY INFORMATION
EXPLANATIONS AND FOOTNOTES

Water solubility is expressed in different terms in different references. Many references use the term "insoluble" for materials that will not readily mix with water, such as gasoline. However, most of these materials are water soluble at the part per million or part per billion level. Gasoline, for example, is insoluble in the gross sense, and will be found as a discreet layer on top of the ground water. But certain gasoline constituents, such as benzene, toluene, and xylene will also be found in solution in the ground water at the part per million or part per billion level.

a. Water solubility expressed as 0.2g means 0.2 grams per 100 grams water at 20°C.

b. Solubility of metals depends on the compound in which they are present.

c. Several chlorinated hydrocarbons exhibit no flash point in conventional sense, but will burn in presence of high energy ignition source or will form explosive mixtures at temperatures above 200°F.

d. Practically non-flammable under standard conditions.

e. Expressed as mm Hg under standard conditions.

f. Explosive concentrations of airborne dust can occur in confined areas.

g. Values for Threshold Limit Value-Time Weighted Average (TLV-TWA) are OSHA Permissible Exposure Limits except where noted in h and i.

h. TLV-TWA adopted by the American Conference of Governmental Industrial Hygienists, which is lower than the OSHA PEL.

i. TLV-TWA recommended by the National Institute for Occupational Safety and Health (NIOSH). A TLV or PEL has not been adopted by ACGIH or OSHA.

j. A - corrosive
B - flammable
C - toxic
D - volatile
E - reactive
F - radioactive
G - carcinogen
H - infectious

k. Dermal Toxicity data is summarized in the following three categories:

Skin Penetration

- A - negligible penetration (solid-polar)
+ B - slight penetration (solid-nonpolar)
++ C - moderate penetration (liquid/solid-nonpolar)
+++ D - high penetration (gas/liquid-nonpolar)

k. Dermal Toxicity data (cont.)

Systemic Potency

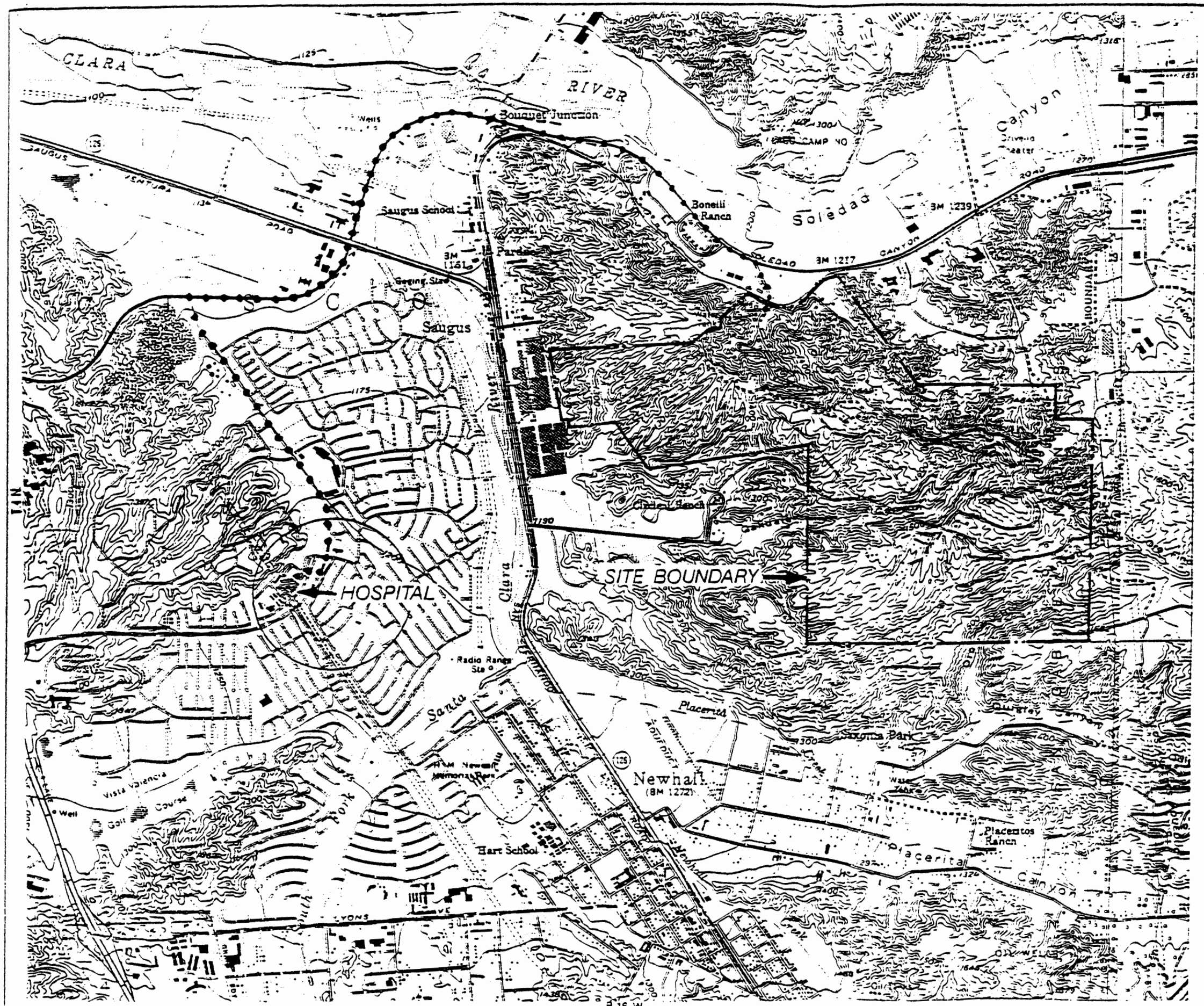
E - slight hazard - LD_{50} = 500-15,000 mg/kg
lethal dose for 70 kg man = 1 pint - 1 quart
F - moderate hazard - LD_{50} = 50-500 mg/kg
lethal dose for 70 kg man = 1 ounce - 1 pint
G - extreme hazard - LD_{50} = 10-50 mg/kg
lethal dose for 70 kg man = drops to 20 ml

Local Potency

H - slight - reddening of skin
I - moderate - irritation/inflammation of skin
J - extreme - tissue destruction/necrosis

L Acute Exposure Symptoms

A - abdominal pain
B - central nervous system depression
C - comatose
D - convulsions
E - confusion
F - dizziness
G - diarrhea
H - drowsiness
I - eye irritation
J - fever
K - headache
L - nausea
M - respiratory system irritation
N - skin irritation
O - tremors
P - unconsciousness
Q - vomiting
R - weakness



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GENERAL NOTES:

BASE MAP FROM U.S.G.S.
MINT CANYON & NEWHALL, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1988

QUADRANGLE LOCATION

0 2000 FT

SCALE 1 : 24,000

HOSPITAL LOCATION MAP
BERMITE
22116 WEST SOLEDAD CANYON ROAD
SAUGUS, CA.

PROJECT NO. 40-90-038	DRAWN BY LH 9/21/90
FILE NO.	PREPARED BY
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.